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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Inventor: Arno HOHMANN et al.

Application No.: 09/926,191

Confirmation No: 4523

Filed: September 21, 2001

Attorney No.: HOHM3001/JEK/JJC

Customer No.: 23364

Examiner: Steven S. Paik

Art Unit: 2876

For: DATA CARRIER WITH A BATTERY AND DISPLAY

**APPLICANT'S APPEAL BRIEF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This appeal brief is filed pursuant to the applicant's appeal to the Board of Patent Appeals and Interferences from the final rejection of claim in the above-application.

**1. REAL PARTY OF INTEREST**

The real party in interest is the assignee of record: Giesecke & Devrient GmbH (Munich, GERMANY).

**2. RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

### **3. STATUS OF CLAIMS**

Claim 1 is the only claim pending in the above-application and a copy of claim 1 is included in the attached Appendix A. This claim has been rejected under 35 U.S.C. § 103(a) as being obvious over the combination of U.S. Patent No. 4,864,109 ("Minematsu") and U.S. Patent 4,575,621 ("Dreifus").

### **4. STATUS OF AMENDMENTS**

All proposed amendments have been entered and no amendments have been officially proposed since the mailing of the Final Rejection dated October 21, 2003.

### **5. SUMMARY OF THE INVENTION**

A problem to be solved by the present invention is to provide a data carrier having means which prevents inadvertent discharge of a battery carried thereby to power electrical circuits and a display.

The present invention is defined as a data carrier having a plurality of connected elements including an electronic circuit, a battery, a display and a solar cell. The solar cell is provided for detecting the usability of the display by determining whether the display can be read by a user or whether there is a certain probability of the display being used or read by a user. If the solar cell determines that the carrier is unuseable, or the probability of use of the display by a user is low, the electric connection between the battery and the display is interrupted.

The solar cell and the battery are electronically connected in series. When the carrier is in a dark environment or exposed to low light levels, only low current flows through the solar cell which results in a high electric resistance that counteracts a fast discharge of the battery.

By connecting the battery to the solar cell in series, the display can also serve as an additional interrupter. More specifically, the voltage of the battery is selected on the basis that it has a voltage lower than the threshold voltage of the display. For example, in the instance where the display has a threshold voltage of 3.5 V, the battery may be selected to deliver 3.0 V and the solar cell be selected to deliver 0.5

V. In the event there is insufficient brightness, the voltage delivered to the display from the combination of the battery and solar cell is below the required threshold for the display.

Since the solar cell is connected in series with the battery to reach a threshold requirement of the display, the data carrier does not require a potential transformer. The battery life in the data carrier of the present invention operates in greater efficiency over known devices that employ potential transformers, and thus has a prolonged battery life over such known devices.

## **6. SUMMARY OF THE APPEALED CLAIM**

Claim 1 is an apparatus claim reciting a data carrier that includes a carrier having an electronic circuit, a battery, a display and a solar cell. The solar cell is specified as being provided for detecting the usability of the display. The solar cell and the battery are described as being electronically connected in series. The voltage of the battery is qualified as being lower than the threshold voltage of the display.

## **7. ISSUES**

A. Whether under 35 U.S.C. § 103(a) selected features from the Dreifus patent can be combined with features of the Minematsu patent to amount to the invention recited in claim 1?

B. Whether obviousness within the meaning of 35 U.S.C. § 103(a) of the subject matter recited in claim 1 over the Minematsu patent in view of the Dreifus patent is established where there is no motivation, suggestion or teaching of the desirability to make the invention recited in claim 1 or improvements embodied by the claimed invention?

## **8. ARGUMENT**

A. The Rejection

Claim1 in this application was finally rejected under 35 U.S.C. § 103(a) based on the combination of the Minematsu patent and the Dreifus patent.

#### B. Pertinent Law

To establish obviousness under 35 U.S.C. § 103(a), differences between the subject matter sought to be patented and the prior art reference are such that the subject matter as a whole would have been obvious to one skilled in the art at the time of the invention. Accordingly, in making an assessment of differences, section 103 specifically requires consideration of the claimed invention as a whole guided by the accepted wisdom at the time the invention was made. *Ruiz v. A.B. Chance Co.*, 357 F.3d 1270, 1275, 69 U.S.P.Q.2d (BNA) 1686, 1689 (Fed. Cir. 2004).

Identification of each element of a claimed invention in prior art references is insufficient to defeat patentability of the whole claimed invention. *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d (BNA) 1453, 1457 (Fed. Cir. 1998). Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching to select and combine the references relied on as evidence of obviousness. *In re Lee*, 277 F.3d 1338, 1342-43, 61 U.S.P.Q.2d (BNA) 1430, 1433 (Fed. Cir. 2002) (citing *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 U.S.P.Q.2d 1001 (BNA), 1008 (Fed. Cir. 2001)).

In making a rejection based on obviousness, particular findings and specific reasons must be provided as to why a skilled artisan would have been motivated to select references and to combine them to render a claimed invention obvious. See *In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d (BNA) 1313, 1317 (Fed. Cir. 2000); See also *In re Rouffet*, 149 F.3d at 1359, 47 U.S.P.Q.2d (BNA) at 1459 (Fed. Cir. 1998). Evidence of the motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved. *In re Dembiczak*, 175 F.3d 994, 999, 50 U.S.P.Q.2d (BNA) 1614, 1617 (Fed. Cir. 1999). Whether an express or implicit showing is relied upon, particular findings related thereto must be provided therewith. *Id.* When general knowledge is relied upon to negate patentability, that

knowledge must be articulated in the record and cannot be resolved on “subjective belief and unknown authority.” *Lee*, 277 F.3d at 1342-1345, 61 U.S.P.Q.2d (BNA) at 1433-35.

C. The Subject Matter Recited In Claim 1 Is Non-Obvious Over The Minematsu Patent In View Of The Dreifus Patent

(1) The Minematsu Patent Fails To Disclose Or Suggest The Data Carrier Embodied By Claim 1 Of The Present Invention

In the final rejection, the Minematsu patent serves as the primary reference upon which the Examiner bases the rejection of claim 1. More particularly, the Minematsu patent is provided as a prior art disclosure exemplifying the use of a solar cell and a battery in a data carrier. The Minematsu patent, however, is different from the claimed invention on the basis of the following observations.

(a) Basic Description Of The Minematsu Patent

The Minematsu patent describes an electronic bankbook that includes an IC chip encapsulated in an insulating card and composed of a CPU and data memories display, a key switch for instructing transaction data items and switching display data, a power supply means, and an interface for receiving and delivering data signals.

Objectives of the electronic bankbook are to provide (1) means to selectively display transaction details of an account, (2) means for employing a data memory in repetition without erasing transaction data, (3) means for stopping transactions when an identification operation is erroneously entered into an automatic cash dispenser, (4) means for displaying memory information, (5) means for detecting a near end state wherein the memory reaches a limit of storage capacity, and (6) means for stopping transactions upon a determination of invalid identification information (col. 3, line 8 through col. 4, line 5).

In the electronic bankbook of the Minematsu patent, the power supply means includes a lithium battery for backing up contents of the data memories, and a solar battery which functions as the main power source of the data carrier (col. 5, lines 18-

23). The solar cell is denoted as supplying sufficient power to the data carrier to permit it to start to fulfill its function even under fluorescent light (col. 5, lines 28-29).

(b) Differences In The Teachings Of The Minematsu Patent  
From The Claimed Invention

While the data carrier in the Minematsu patent includes a power supply means including a solar cell and a battery, there is nothing which tends to indicate that the configuration of the power supply means described by the Minematsu patent is provided to overcome the problem of preventing inadvertent discharge of a battery in a data carrier. Instead, the nature of the problems solved by the Minematsu patent are related to the management of the transaction data stored by the memories of the data carrier and the security thereof.

The solar cell in the data carrier of the Minematsu patent is provided to supply power to the elements of the data carrier and is featured as the main power source of the electronic bankbook. On the other hand, the battery is merely described as being provided to back up the memories of the electronic bankbook and is not defined as the main power source. It appears that the solar cell and the battery in the Minematsu patent operate separately.

Contrariwise to the teachings of Minematsu patent, the solar cell of claim 1 of the present invention is provided to "detect" the usability or probability of use of the display of the data carrier recited therein. Upon detection of sufficient light by the solar cell in the present invention, the data carrier is operational. Unlike the arrangement described in the Minematsu patent, however, the power supplied to the display and electrical circuits in the present invention is primarily powered by the battery.

Thus, the Minematsu patent simply fails to disclose or suggest the functional relationship of the solar cell and the battery described in claim 1 of the present application.

In observing FIG. 1 illustrated in the Minematsu patent, the solar cell 9 and the battery 8 are shown as being connected to one another. The solar cell and the

battery, however, are not shown as being connected to any of the other elements shown in this figure. It is respectfully submitted that FIG. 1 is merely a schematic view of the data carrier and omits details as to how exactly the elements shown therein are connected. Moreover, in view of the specification of the Minematsu patent, there is no description as to how the elements are specifically connected to one another, including the solar cell and the battery. Accordingly, the Minematsu patent fails to specifically disclose or suggest the electrical relationship between the solar cell and the battery of the present application.

The mere conclusory statements in the final rejection of claim 1 regarding the teachings of the Minematsu patent do not adequately address the relationship between the solar cell and the battery in combination with the display in the Minematsu patent. Instead, the rejection has been construed from the teachings in the Minematsu patent that the mere provision of the solar cell and battery described therein somehow have the same functional and electrical relationships of the solar cell and battery of the claimed invention without any regard to contrary teachings or the absence of such teachings therein.

Lastly, there is no disclosure or suggestion of the electrical relationship between the threshold level of the display and the battery in the Minnematsu patent. This is particularly evident since the solar cell is described as supplying the power to the electronic bankbook, and the battery is simply described as being provided to back up the memories of the electronic bankbook. Accordingly, in view of the above-observations on the lack of description on the functional and electrical relationship between the solar cell and the battery in the Minematsu patent, and the basic purpose of both the solar cell and the battery, it is plainly apparent that the Minematsu patent does not contemplate the electrical relationship between the display and the battery of the present invention.

In view of the deficiencies of the Minematsu patent, what can the Dreifus patent reasonably convey that would motivate a skilled artisan to modify the electronic bankbook of the Minematsu patent to make the data carrier recited in claim 1 of the present application?

(2) The Dreifus Patent Fails To Disclose Or Suggest The Data Carrier Embodied By Claim 1 Of The Present Invention

In the final rejection, the Dreifus patent has been combined with the Minematsu patent to make up for the shortcomings in the teachings of the Minematsu patent. The Dreifus patent, however, fails to make up for the shortcomings in the Minematsu patent as will be explained below.

(a) Basic Description Of The Dreifus Patent

The Dreifus patent describes a portable electronic transaction device and a terminal for receiving the device. The device includes a card having a central data processor, a fixed memory, an adaptable memory, optical means for transmitting and receiving information between the device and the terminal, and a power source. The device is arranged to operate in a standby mode during which it monitors itself for abnormal conditions, or in an operating mode during which it communicates with the terminal. The device includes an encryption/decryption system for communicating with an associated terminal.

In the standby mode, the power for the card is supplied by an on-board battery. In this standby mode, the card monitors itself by an interrupt control circuit. The interrupt control circuit monitors the features of the card and disables such features upon detection of physical intrusion or the sensing of an inoperative or marginally operative condition of the card. Moreover, the interrupt control is arranged to switch the card from the standby mode to the operating mode. When the card is in the operating mode, power is supplied to the card to by photocells. Thus, when the card is inserted into the terminal, a signal is received by a phototransistor on the card, light is received by the card's photocells, and the interrupt control, in turn, switches the card into the operating mode (col. 4, line 64 through col. 5, line 14).

The interrupt control circuit is described as detecting the presence of signals from clocks and checks for a proper output level from the photocells. If all of the checks are valid, the interrupt control circuit switches the device from the standby mode to the output mode (col. 11, lines 28-40). Moreover, the interrupt control



includes a low power signal that is connected to the battery, as shown in FIG. 6, which enables the interrupt control to monitor the voltage level of the battery (col. 12, lines 15-55). In the event the voltage drops below a threshold, the interrupt control unit disables operation of the card (col. 15, lines 44-52).

(b) Differences In The Teachings Of The Dreifus Patent  
From The Claimed Invention

Contrary to the assertion in the final rejection, it is not the photocells of the card in the Dreifus patent that determines the usability or probability of use of the card described therein. Instead, as discussed above, the interrupt control circuit of the device controls whether the device is in the standby mode or the operating mode by monitoring the usability and probability of use of the card. Moreover, the operating mode of the card is effected only by the interrupt control unit which switches between the modes when it is triggered by the signal received by the phototransistor and the light received by the photocells.

The final rejection fails to reconcile the difference of the interrupt control unit from the photocells in the Dreifus patent in comparison to the solar cell disclosed in the claimed invention. While it is clear from the Dreifus patent that the photocells are dependent upon the interrupt control unit which serves as an intermediary element governing the operation of the card with the terminal, it is not certain from the final rejection what is considered in the Dreifus patent as an equivalent teaching of the arrangement and relationships between the solar cell, battery and display of the claimed invention.

It is submitted that the photocells in the Dreifus patent do not determine the usability and probability of use of the card, as in the solar cell of the claimed invention. Instead, operation of the card in the Dreifus patent is clearly governed by the interrupt control unit. Operation of the card, therefore, is not achieved by the photocells per se or on the basis of different voltage thresholds of the display and the battery, as alleged by the Examiner. Accordingly, the Dreifus patent conveys a system for monitoring the usability and probability of use of a data carrier that is both functionally and structurally different from the present invention.

In the final rejection, it is asserted that the Dreifus patent sufficiently discloses the photocells as being connected to the battery in serial relationship. This assertion is rationalized in the rejection by the statement in the Dreifus patent of the LEDs and phototransistors being described as possibly connected in series, in parallel, or in a series-parallel arrangement (col. 6, lines 35-44). It will be pointed out that the use of the LEDs and phototransistors described in the Dreifus patent are not equivalent to the battery and photocells, and it is abundantly clear that the LEDs and phototransistors described in the Dreifus patent do not supply power to the card.

Moreover, the Examiner pointed to column 11 of the Dreifus patent as providing a disclosure of the battery and photocells being connected to one another in series. It will be noted that there does not appear to be a description in column 11 of the Dreifus patent of the battery and the photocells being connected in series. In addition, while the schematic view of FIG. 5 in the Dreifus patent shows a connection between the photocells and the battery, there is nothing that specifically indicates that these features are connected in series.

Lastly, while the final rejection ascribes a prior art teaching of providing a battery that has a lower voltage threshold than the threshold voltage of a display to the Dreifus patent, the rejection fails to identify where this teaching exists in the Dreifus patent. It is respectfully submitted that the Dreifus patent does not disclose such a relationship between the battery and the display. Instead, the display appears to be powered only by the photocells when the card is in an operating mode, and not by the battery itself. It is clear by the description in the Dreifus patent that the battery is only for providing power when the card is in the standby mode.

In view of these observations, it is clear that the claimed invention is different from the teachings of the Dreifus patent.

- (3) There Is No Suggestion To Combine The Selected Features Of The Minematsu Patent With The Dreifus Patent; Therefore, The Proposed Combination Is An Impermissible Hindsight Reconstruction

As detailed above, neither the Minematsu patent nor the Dreifus patent discloses or suggests the functional and structural characteristics of the elements of the data carrier of the claimed invention. While the final rejection alleges that the Dreifus patent makes up for the shortcomings of the Minematsu patent, it is not only submitted that these prior art references fail to disclose or suggest the data carrier of the claimed invention, but that there is no suggestion to combine the selected features of the Minematsu patent with the Dreifus patent.

The Minematsu patent discloses an electronic bankbook that includes a solar cell and a battery. The Dreifus patent discloses a data carrier having photocells and a battery that are controlled by an interrupt control unit. The Examiner appears to select the interrupt control unit of the Dreifus patent, and proposes to furnish in the electronic bankbook of the Minematsu patent with the interrupt control unit of the Dreifus patent. There is no reason to select only the interrupt control unit of the Dreifus patent. Moreover, the solar cell of the Dreifus patent is not configured with the battery in the same manner described in claim 1 of the claimed invention.

Accordingly, there is no suggestion of combining a solar cell with a battery in series to detect the usability or probability of use of a display in either the Minematsu or Dreifus patents.

While the Examiner selects the interrupt control unit of the Dreifus patent for application in the electronic bankbook of the Minematsu patent, the Examiner appears to ignore that the interrupt control unit is an element that is in addition to the already existing solar cell in the electronic bankbook of the Minematsu patent. There is no acknowledgment that the data carrier of the claimed invention does not need an interrupt control unit. This, of course, is because the solar cell in the claimed data carrier is configured with the battery in series, and the battery and the display are selected on the basis of their threshold requirements which effectively eliminates the need for a complex interrupt control such as the one proposed by the Dreifus patent.

If the rest of the teaching of the Dreifus patent were incorporated into the electronic bankbook of the Minematsu patent, the resulting combination with the interrupt control unit would be a cumbersome way of modifying the bankbook to

prevent inadvertent discharge of the of the battery, unlike the elegant solution set forth in claim 1 of the present application.

The arbitrary selection of only the interrupt control unit from the Dreifus patent flies in the face of the law which prohibits combining isolated features based on Appellant's own disclosure. As is well understood, "one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *In re Fine*, 837 F.2d 1071, 1075, U.S.P.Q. (BNA) 1596, 1600 (Fed. Cir. 1988). Therefore, the proposed combination amounts to a hindsight reconstruction of Appellant's own invention based on the disclosure thereof.

The Examiner asserts that in view of the teachings of the Minematsu and Dreifus patents, one of ordinary skill in the art would have motivated to make the claimed data carrier at the time the claimed invention was made. The rationale for the motivation proffered by the Examiner is that it would have been more economical to make the claimed data carrier, and that the claimed data carrier would have provided more reliable control.

The Examiner's rationale does not find any support in the prior art references themselves, as they are, as indicated above, directed to problems unrelated to economic feasibility. Also, the Examiner fails to acknowledge that an interrupt control unit would greatly complicate the electronic bankbook of the Minematsu patent. Evidence of the complexity of the interrupt control unit is clearly shown in FIG. 6 of the Dreifus patent which illustrates the features of the interrupt control unit.

The Examiner's statements regarding the motivation or desirability to combine the Minematsu and Dreifus patents are conclusory in nature and fail to address the adequacy of motivation to combine these references. The Examiner's rationale for combining the Minematsu and Dreifus patents is not based on objective evidence, but is instead grounded on subjective belief and unknown authority. Thus, the Examiner has failed to make the requisite findings of motivation to modify the electronic bankbook of the Minematsu patent with the teachings of the Dreifus patent, and moreover, has failed to explain the reasoning by which the findings are

deemed to support the Examiner's conclusion. See e.g., *Lee*, 277 F.3d at 1345, 61 U.S.P.Q. at 1434.

It is therefore submitted that the motivations provided by the Examiner to combine the teachings of the Minematsu and Dreifus patents is not taken from the prior art references themselves, but instead appear to be taken from Appellant's disclosure or are merely fabricated by the Examiner.

**9. CONCLUSION**

For the reasons set forth above, appended claim 1 defines subject matter which is not obvious within the meaning of 35 U.S.C. § 103(a) over the Minematsu patent and the Dreifus patent.

The fee required by 37 C.F.R. § 1.17(c) is enclosed herewith.

In accordance with 37 C.F.R. § 1.192(a), this brief is submitted in triplicate.

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Date: April 13, 2004

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Respectfully submitted,

A handwritten signature in black ink, appearing to read "Justin J. Cassell", written over a horizontal line.

JUSTIN J. CASSELL  
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## **APPENDIX A**

1. (Previously Presented) A data carrier comprising a carrier with at least an electronic circuit, a battery and a display, the data carrier having a solar cell for detecting the usability or probability of use of the display, wherein the solar cell and the battery are electrically connected in series, the voltage of the battery being lower than the threshold voltage of the display.